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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/821,413	04/09/2004	Anders Landin	5181-98401	8428

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EXAMINER	
PATEL, KAUSHIKKUMAR M	
ART UNIT	**PAPER NUMBER**
2188	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/27/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/821,413	LANDIN, ANDERS	
	Examiner	Art Unit	
	Kaushikkumar Patel	2188	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

2. Claims 4, 8, 13 and 17 are objected to because of the following informalities:

Claims 4 and 13 recites limitation "proxy invalidate modified packet (PIM)", according to present application specification, page 69, par. [00191], the PIM packet is initiated in response to write stream and since claims 3 or claim 12, recites write stream, the examiner understood as, claims 4 and 13 depends from claims 3 and 12 respectively and it is treated as such in this office action.

Claims 8 and 17 recites the limitation "cache configured to store a node identifier modified global access state node". Applicant is advised to change the limitation to "cache configured to store a node identifier of modified global access state node".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-2, 5-11, 14-20 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alan Charlesworth (The Sun Fireplane System Interconnect, published 2001 by the ACM/IEEE SC2001) (Alan herein after), Hagersten et al. (US 6,449,700) (Hagersten-1 herein after) and Hagersten et al. (US 5,940,860) (Hagersten-2 herein after).

As per claim 1, Alan/Hagersten-1/Hagersten-2 teach a node including an active device, a memory, an interface, and an address network configured to convey address packets between the active device, the memory and the interface (Alan, page 2, sec. 3, page 3, fig, 3, Hagersten-1, figs. 1-2, Hagersten-2, figs. 1-2);

an additional node coupled to send a coherency message requesting write access to a coherency unit to the interface via an inter-node network (Alan, sec. 3, fig. 3, sec. 6.1, read-to-own transaction);

wherein in response to receiving the coherency message (home node receiving remote-read-to-own packet initiated in requesting node, Alan sec. 6.2), the interface is configured to send an address packet on the address network (send invalidate packet to invalidate shared copies, because read-to-own packet requires other shared copies to be invalidated),

wherein in response to the address packet, the memory is configured to update an indication associated with the coherency unit to indicate that the coherency unit is in a modified global state in the additional node; wherein the active device is configured to

invalidate an access right to the coherency unit in response to the address packet. (Alan teaches global states for coherency protocols, sec. 5 and teaches remote-read-to-own request, sec. 6.2, for write access of data from remote node, sec. 8.2 of Alan teaches an exemplary read request with global tag modification, and similarly read-to-own request for write access is known in the art, where in response to remote-read-to-own request, the node invalidates all the shared copies of coherency unit and updates the global tags, see Hagersten-2, col. 10, lines 25-44).

Alan fails to teach interface encoding a node identifier. Hagersten-1 teaches interface encoding initiator node ID for transactions remote to the node (Hagersten-1, col. 20, lines 55-63). It would have been obvious to one having ordinary skill in the art at the time of the invention to utilize Node ID as taught by Hagersten-1 in the system of Alan to send data to proper initiating node (Hagersten-1, col. 21, lines 1-40).

As per claim 2, Alan and Hagersten-2 teach that node sends invalidate packets to all devices holding shared copies to invalidate respective shared copies (Hagersten-2, col. 10, lines 25-40).

As per claims 5-7, Alan teaches multiple types of requests (local or remote) (Alan, sec. 6). Hagersten-2 teaches details of such transactions, wherein Hagersten-2 teaches that in response to read-to-own or remote-read-to-own packet all the shared copies (local and remote) of data must be invalidated by sending XINV command (Hagersten-2, col. 10, lines 25-40, col. 12, lines 10-36). Thus, Hagersten-2 teaches in

response proxy read to own packet invalidating data of active device and the active device transitioning read access to invalid access and if active device is owner, then active device sends data and than transitions to invalid access right (Hagersten-2, col. 10, lines 30-36, obtaining exclusive copy from external device and invalidating that external copy and returning that copy to initiator).

As per claim 8, Hagersten-1 teaches use of node identifier with Mtag in the interface (Hagersten-1, col. 17, line 47 – col. 18, lines 8). Alan teaches use of coherency directory cache to maintain the tags and updating gtag (Alan, sec. 5). Although, Alan and Hagersten-1 fails to teach updating node identifier, it would have been obvious to one having ordinary skill in the art at the time of the invention to update the node identifier during update of gtag to identify current node with modified state.

As per claim 9, Alan teaches sending coherency massages from source to destination (Alan, sec. 3) using point-to-point directory protocols, which inherently teaches sending packets to node identified in the memory. Hagersten-1 also teaches use of node ID to send packet to correct node as explained with respect to claim 1 above.

Claims 10-11, 14-20 and 23-25 are also rejected under same rationales as applied to claims 1-2 and 5-9 above.

5. Claims 3-4, 12-13 and 21-22 are rejected under **35 U.S.C. 103(a)** as being unpatentable over Alan Charlesworth (The Sun Fireplane System Interconnect, published 2001 by the ACM/IEEE SC2001) (Alan herein after), Hagersten et al. (US 6,449,700), (Hagersten-1 herein after) and Hagersten et al. (US 5,940,860) (Hagersten-2 herein after) as applied to claims 1-2 above and further in view of Hagersten et al. (US 5,887,138) (Hagersten-3).

As per claims 3 and 4, Alan and Hagersten-1 and Hagersten-2 fail to teach write stream transaction. Hagersten teaches a write stream transaction and in response to write stream transaction, the shared or owned copies of the coherency unit must be invalidated by invalidate demand (proxy invalidate modified) and owner invalidates the data and replies with data (Hagersten-3, col. 24, line 1 – col. 25, line 25). It would have been obvious to one having ordinary skill in the art at the time of the invention to provide write stream transaction as taught by Hagersten-3 in the system of Alan, Hagersten-1 and Hagersten-2 to write entire cache line for block copy operation (Hagersten-3, col. 24, lines 2-4) and provide data reply to acknowledge for completion of request (Hagersten-3, col. 24, line 64 – col. 25, line 4).

Claims 12-13 and 21-22 are similar in scope and hence rejected under same rationales as applied to claims 3-4 above.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaushikkumar Patel whose telephone number is 571-272-5536. The examiner can normally be reached on 8.00 am - 4.30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hyung Sough can be reached on 571-272-6799. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kaushikkumar Patel
Examiner
Art Unit 2188

kmp

HYUNG SOUGH
SUPERVISORY PATENT EXAMINER
12/26/06